

Claim 16, line 5, delete "is of" and insert --comprises--.

Claim 17, line 2, after "body" insert --further--.

Claim 19, line 3, delete "a display of".

Please add the following new claim:

a2 ²¹ ~~20~~. The image observation apparatus as claimed in claim ¹³ ~~12~~, wherein the image display device is reset to a predetermined image display condition.--

REMARKS

Favorable reconsideration of this application is respectfully requested in light of the following remarks.

By this amendment, the specification has been amended for clarity and to correct typographical errors.

Claims 1-20 are currently pending. Claims 1, 3, 5-8, 10, 13, 15-17, and 19 have been amended for clarity and to highlight distinguishing features of the present invention.

New claim 20 has been added.

Claim 1:

Claim 1 was rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over the Tabata patent (U.S. patent No. 5,579,026) in view of the Hirano et al. patent (U.S. Patent No. 3,812,489). Applicants respectfully traverse.

The present invention as recited in claim 1 is an image observation apparatus capable of providing a virtual reality experience for the user. It includes a main body with an image display device, a detector for detecting the posture (orientation) of the main body, and a controller for linking an image displayed by the image display device to a signal from the posture detector (i.e., the movement of the image is linked to the signal). The invention as claimed in claim 1 also comprises an operational member provided on the main body which is operated manually such that the controller stops linking the image to the signal from the posture detector when the operational member is operated. Note that claim 1 has been amended to highlight this latter distinguishing feature. Specifically, the phrase "the controller stops controlling the image" now reads "the controller stops linking the signal to the image" (pg. 42, line 12).

By manually operating the operational member (for example, by turning a linking switch to an off position), the user prevents the image from being changed or moved when the observer is not observing the image (present specification, page 7, lines 3-13; page 24, lines 10-24). As a result, when the observation is resumed, the image provided is recognizable and consistent with the prior image, regardless of any unintentional movement or rough handling of the main body. Without this feature to suspend the linking, the image displayed when observing is resumed might bear little resemblance to the image previously displayed. This situation can be confusing to an observer (present specification, page 4, lines 7-23). Solving this problem is an object of the present invention (page 6, lines 9-14; page 12, lines 1-4).

In contrast, as noted in the Office Action, the Tabata patent (Figures 1 and 2) does not disclose such an operational member on the main body (1) of the Tabata apparatus. Further, the Tabata patent does not disclose that the controller (11) of the Tabata apparatus suspends linking of an image when the operational member is operated. The Office Action asserts, however, that the present invention would have been obvious given the Tabata patent in view of the Hirano et al. patent, which discloses a power-saving desktop calculator. The Office Action asserts that the Hirano et al. patent describes a controller that "stops displaying for a predetermined period of time after one of the operational keys is being operated" (Office Action, page 3, lines 11-12). Applicants do not understand the basis for this characterization for the reasons stated below.

Applicants disagree that the present invention as claimed in claim 1 would have been obvious in view of the Tabata and Hirano et al. patents for at least three reasons. First, Applicants submit that the subject matter of the Hirano et al. patent, which involves a desktop calculator, is unrelated to the subject matter of the present invention, and therefore, there would be no motivation to combine the Hirano et al. patent with the Tabata patent.

Second, the purpose of the Hirano et al. device is to reduce power consumption in the calculator by suspending the display after a period of inactivity. This purpose is entirely different from that of the present invention, which is to eliminate user confusion associated with a personal display apparatus by suspending the linking of an image when

the user does not observe the image or does not want to observe the image. Thus, again, there would be no motivation to combine the prior art references.

Third, Applicants submit that the present invention would not be obvious even if the Tabata patent and the Hirano et al. patent were combined. Specifically, Applicants submit that the Office has apparently misunderstood the Hirano et al. device. Contrary to the assertion of the Office, the controller of the Hirano et al. device does not suspend the numerical display for a predetermined period of time when one of the keys is operated. Rather, the Hirano controller suspends the numerical display after a predetermined time period of inactivity. That is, the Hirano controller suspends the display after a predetermined time period when any of the keys has not been operated (Hirano et al. patent, col. 4, lines 45-50). The suspended display is then reactivated when one of the keys is operated. This mode of operation is consistent with a power-saving controller (a stated object of the Hirano et al. patent) but is entirely incompatible with the function of the present invention as claimed in claim 1.

Specifically, applying the method of the Hirano controller to the present invention as recited in claim 1 would defeat the operation of the present invention recited in claim 1. If the function of the operational member as recited in claim 1 were designed according to the Hirano et al. patent, operating the operational member would maintain linking of the image to the signal from the posture detector. Only after not operating the operational member for a predetermined time period would linking be suspended. This mode of operation contradicts the function of the present invention as recited in claim 1. For at

least these reasons, Applicants submit that claim 1 of the present invention is unobvious and allowable.

Claims 5-8, 12-13, and 18-19:

Claims 5-8, 12-13 and 18-19 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over the Tabata patent in view of the Tonosaki patent (U.S. Patent No. 5,635,948). Applicants respectfully traverse.

Claim 5 of the present application recites an image observation apparatus comprising a main body, a first detector in the main body for detecting that the user observes an image being displayed, a second (posture) detector, and a controller for controlling the image in response to the second detector. The controller stops linking the image to the signal from the second detector when the first detector detects that the user is not observing. Note that claim 5 has been amended to highlight this distinguishing linking feature.

As noted in the Office Action, the Tabata patent does not disclose a first detector provided in the main body (1) of the Tabata apparatus (Figure 1 of the Tabata patent). Further, the Office Action notes that the Tabata patent does not disclose that the controller (11) of the Tabata apparatus stops controlling (linking) the image being displayed to the signal from the posture detector when the first detector detects that the user does not observe the image.

The Office Action asserts, however, that the Tonosaki patent discloses (Figure 1) a head-mounted display that includes a (first) detector for detecting whether or not the user observes the image being displayed. The Office Action further asserts that the Tonosaki patent discloses a controller that stops controlling the image when the detector detects that user is not observing. Furthermore, the Office Action asserts that it would have been obvious for one of ordinary skill in the art to incorporate the image control feature of the Tonosaki apparatus with the Tabata apparatus.

Applicants respectfully disagree that the Tonosaki apparatus combined with the Tabata apparatus renders the present invention as claimed in claim 5 obvious. The purpose of the use-state detector in the Tonosaki apparatus is to reduce power consumption by interrupting the power supplied to the entire apparatus or to some elements of the apparatus (Tonosaki patent, col. 1, lines 45-53). Figures 3A, 3B, 4A, and 4B of the Tonosaki patent illustrate modes of operation in which the power supply to the entire apparatus is turned off when a non-use state is detected (col. 5, lines 30-33 and lines 65-67). Figures 5A and 5B illustrate modes of operation in which all power is turned off when a non-use state is detected, except for the power to the use-state detector (9) and to the controlling means (10) (col. 6, lines 15-20).

Both of these modes of operation disclosed in the Tonosaki patent are incompatible with the operation of the present invention as claimed in claim 5. First, the mode of operation described in Figures 3A, 3B, 4A and 4B of the Tonosaki patent, if applied to the present invention, would destroy the image state of the present invention as claimed in

claim 5 because power to the entire device would be turned off. Thus, consistent images would not be observed before and after a period of non-observation, in violation with a desired function of the present invention as embodied by the recitation of claim 5.

Second, the mode of operation disclosed in Figures 5A and 5B of the Tonosaki patent retains power only to the use-state detecting means (9) and the controlling means (10) when a state of non-observation is detected. Power is not maintained to the signal processing means (7, 8), the displaying means (1, 2), or the driving means (3, 4) (the various means are illustrated in Figure 2 of the Tonosaki patent). Thus, if this mode of operation was used with the present invention, the image state would again be destroyed during a period of non-observation. Therefore, this mode of operation is also incompatible with the embodiment of the present invention as recited in claim 5. For at least these reasons, Applicants submit that claim 5 is unobvious and allowable.

Claims 12, 18, and 19 were rejected as allegedly being unpatentable over the Tabata patent in view of the Tonosaki patent for the same reasons that the Office set forth with regard to claim 5. Applicants respectfully traverse.

Claim 12 recites an image observation apparatus comprising a main body which has an image display device, a controller for controlling the apparatus, and a first detector for detecting whether a user stops observing an image displayed on the image display device. Further, claim 12 recites that the controller sets at least one setting condition of the image observation apparatus to a predetermined condition when the first detector detects that a user stops observing.

In contrast, as noted in the Office Action, the Tabata patent does not disclose a first detector for detecting whether a user stops observing an image displayed on the image display. The Office relies on the Tonosaki patent for a disclosure of a detector that detects whether or not an observer observes an image display device. However, the Office does not address the recitation in claim 12 that “the controller sets at least one setting condition of the image observation apparatus to a predetermined condition when the first detector detects that the user stops observing the image.” Applicants submit that this subject matter is not disclosed by either the Tabata or Tonosaki patents.

The Tonosaki patent discloses that if the Tonosaki apparatus is in the operating state and leaves the head of the observer (as detected by the use-state detecting means), “the supply of power is automatically stopped immediately, thereby preventing waste of power...” (column 8, lines 62-66 of the Tonosaki patent). Thus, in contrast to the present invention as recited in claim 12, the Tonosaki patent does not disclose that a controller, “sets at least one setting condition of the image observation apparatus to a predetermined condition” such that the image display remains on. Further, maintaining power to the Tonosaki image display during a period of non-use would be contrary to a technical object of the Tonosaki display apparatus -- namely, to prevent waste of power (column 1, lines 46-47 of the Tonosaki patent). Applicants, therefore, submit that the Tonosaki patent does not make up for the deficiencies of the Tabata patent.

Further, though the embodiment recited in claim 12 differs from that recited in claim 5, the motivation is substantially similar -- to reduce confusion of the user by

returning the apparatus to a recognizable condition after a period of non-observation. The combination of the Tabata and Tonosaki patents do not provide motivation for returning the apparatus to a preset condition that reduces user confusion following a period of non-observation. For at least these reasons and for reasons similar to those set forth with regard to claim 5, Applicants submit that claim 12 is allowable.

Claim 18 recites the subject matter of claim 12 and further recites a second detector for detecting posture wherein the controller controls the image being displayed in response to the signal from the second detector. Claim 18, as a result, is similar in relevant part to claim 5, though it claims the present invention in a different combination. Given the similarity, Applicants submit that claim 18 is allowable at least for reasons similar to those set forth with regard to claim 5 and, further, that claim 18 is allowable by virtue of dependency on claim 12.

Claim 19 recites the subject matter of claim 18 and further recites new subject matter that the controller resets a parameter for controlling the image being displayed to a predetermined value that depends on the signal from the second detector when the first detector detects that a user is not observing. No motivation for such a construction is provided in the Tabata or Tonosaki patents. Thus, for at least this reason and by virtue of dependency, Applicants submit that claim 19 is allowable.

Claims 6-8 were rejected as allegedly being unpatentable over the Tabata patent in view of the Tonosaki patent. Specifically, the Office Action asserts that the flow charts of Figures 3A and 3B in the Tonosaki patent disclose a software instruction that is given to

the display device to allow or prohibit control of the image, rendering claims 6-8 obvious. Applicants respectfully disagree.

Claim 6, which depends on claim 5, further recites an instruction device that must be enabled, in addition to the detection of a user's observation, for the linking recited in claim 5 to occur. Claims 7 and 8 recite specific orderings of steps pertaining to the enabling by the instruction device and the user detection. Note that claims 6-8 have also been amended to highlight the distinguishing linking feature.

As recited in claims 6-8, the instruction device is an enabling device used in addition to the first detector (use-state detector). In contrast, the software instruction noted by the Office Action is the software instruction provided by the use-state detector of the Tonosaki apparatus. Thus the instruction device claimed in claims 6-8 provides an additional level of enabling not suggested by the Tonosaki or Tabata patents. In addition, the specific orderings of enabling recited in claims 7 and 8 are not motivated by the Tabata and Tonosaki patents. For at least these reasons, and by virtue of dependency on claim 5, Applicants submit that claims 6-8 are allowable.

Claim 13 was rejected as allegedly being unpatentable over the Tabata patent in view of the Tonosaki patent. Specifically, the Office Action suggests that because the Tabata patent discloses detecting the posture of the display apparatus, detecting whether or not the apparatus is placed on the rest is broadly included. Applicants respectfully disagree, but have amended claim 13 in an effort to reduce any potential confusion in reading the claim.

Claim 13 recites the subject matter of claim 12 and further recites a rest block on which the main body is placed such that the placement of the main body on the rest block is detected. Claim 13 has been amended to recite "a rest detector" in place of "the first detector." Support for this subject matter (the rest sensing switch 32) may be found in Figure 2 and on page 19, lines 10-12 of the present application. Applicants submit that the rest detector detects the rest condition.

In addition, the posture detector disclosed in the Tabata patent is only an orientation detector, not an absolute position detector, and is, therefore, not capable of providing the detection claimed in claim 13. Neither the Tabata nor the Tonosaki patent provides motivation for a rest detector as claimed in claim 13. For at least these reasons, and by virtue of dependency, Applicants submit that claim 13 is allowable.

Claims 2-4:

Claims 2-4 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over the Tabata patent and the Hirano patent, and further in view of the Takasu publication (Japanese Patent Publication No. 03056923A). Applicants respectfully traverse.

Claim 2, which depends on claim 1, further recites a camera which forms the image displayed on the display device such that the controller controls the posture of the camera. Claim 3 further recites that the operational member is used for adjusting at least one of the posture, the focal length, or the focus of the camera. Claim 4, which depends on claim 1, further recites an image forming apparatus rather than a camera.

The Office Action suggests that combining the posture-controlled camera (image forming device) illustrated in Figure 1 of the Takasu publication with the Tabata and Hirano patents renders claims 2-4 obvious. Applicants respectfully disagree.

Applicants submit that claims 2-4 are allowable at least by virtue of dependency on claim 1. In addition, Applicants submit that claim 3 recites additional subject matter that is unobvious. The operational member claimed in claim 3, which adjusts at least one of the posture, the focal length, or the focus of the camera, is not suggested in the Tabata patent, the Hirano patent, or the Takasu publication (abstract; Figure 1). For at least these reasons, Applicants submit that claims 2-4 are allowable.

Claims 9-11 and 14-17:

Claims 9-11 and 14-17 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over the Tabata and Tonosaki patents as applied to claim 5, and further in view of the Takasu publication. The argument provided by the Office Action is substantially similar in relevant part to that provided in the rejection of claims 2-4, which were rejected as allegedly obvious given the Tabata and Hirano patents as applied to claim 1 in view of the Takasu publication.

Applicants submit that claims 9-11 and 14-17 are allowable by virtue of dependency on claims 5 and 12, respectively. Applicants further submit that claims 9-11 and 14-17 are allowable in view of additional unobvious subject matter recited therein. Claim 10, for example, which depends on claim 5, further recites a posture-controlled camera and an

operational member used for adjusting at least one of the posture, the focal length, or the focus of the camera. Such an operational member is not suggested by the Tabata patent, the Tonosaki patent, or the Takasu publication (abstract; figure 1). In addition, claim 14, which depends on claim 12, further recites that a predetermined condition (invoked when a user stops observing) includes at least one of a condition for the posture, the focal length, or the focus of the camera. In addition, claim 15 further recites an operational member for controlling the camera. Similarly, claim 17 recites an operational member for controlling the image producing device. Applicants submit that these features are not suggested by the Tabata patent, the Tonosaki patent or the Takasu publication (abstract; Figure 1). For at least these reasons, Applicants submit that claims 9-11 and 14-17 are allowable.

Claim 20:

New claim 20 depends from claim 12 and recites an advantageous condition. Applicants submit that claim 20 is allowable at least by virtue of dependency.

In light of the of the foregoing remarks, withdrawal of the rejections of record and allowance of this application are respectfully solicited.

Application No. 08/988,537
Attorney's Docket No. 018775-718

Should any questions arise in connection with this application or should the Examiner believe that a telephone conference with the undersigned would be helpful in resolving any remaining issues pertaining to this application, the undersigned respectfully requests that he be contacted at the number indicated below.

Respectfully submitted,

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Date: January 18, 2000